### U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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### **TUNGSTEN IN DECEMBER 1996**

Based upon net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from hydrogen reduced metal powder, the U.S. industrial tungsten activity for December 1996 decreased by about 16% compared with that of November 1996, according to the U.S. Geological Survey. U.S. industrial tungsten activity for the 12 months of 1996 was about 8% lower than for the same period of 1995. Reported consumption of tungsten in all end-use products through December 1996 decreased by about 5% compared with that through the same period of 1995.

November trade data are included in this issue. Trade data for December were unavailable at the time of publication and will appear in a subsequent issue.

The combined wolframite and scheelite prices from Metal **Bulletin** were:

Low \$43/mtu WO<sub>3</sub> (\$39.01/stu WO<sub>3</sub>), January 1-31, 1997 High \$53/mtu WO<sub>3</sub> (\$48.10/stu WO<sub>3</sub>), January 1-31, 1997

## TABLE 1 U.S. SALIENT TUNGSTEN STATISTICS 1/

(Metric tons, tungsten content)

		Concentrate		_	Intermediate products			
		Imports	Stocks,	Reported	Net		Stocks,	
	Reported	for	end of	scrap	produc-	Reported	end of	
Period	consumption	consumption	period 2/	consumption	tion 3/	consumption 4/	period 5/	
1995:						_	_	
January-December	6,320	4,180	631	2,350	8,190	11,900	1,290	
1996:								
January	479	310	486	261	718	993	1,220	
February	475	162	438	186	933	1,000	1,360	
March	504	155	559	223	845	957	1,440	
April	580	148	694	236	787	973	1,510	
May	415	403	654	200	303	1,070	1,550	
June	551	365	721	199	473	947	1,560	
July	506	383	633	273	866	935	1,780	
August	415	183	695	250	525	1,110	1,640	
September	422	521	601	134	524	836	1,550	
October	342	181	803	207	633	835 r/	1,490	
November	413	510	669	140	502	788 r/	1,450	
December	318	NA	569	142	422	838	1,360	
Total	5,420	3,320	XX	2,450	7,530	11,300	XX	

- r/ Revised. NA Not available. XX Not applicable.
- 1/ Data are rounded to three significant digits; may not add to totals shown.
- 2/ Reported by consumers.
- 3/ Net production of tungsten metal powder, tungsten carbide powder, chemicals, and other products.
- 4/ Includes data on tungsten carbide powder from secondary sources.
- 5/ Reported by producers.

TABLE 2
U.S. PRODUCTION, CONSUMPTION, AND STOCKS OF AMMONIUM PARATUNGSTATE, BY MONTH 1/

(Metric tons, tungsten content)

			Stocks, end of	
Period	Production	Consumption	period 2/	
1995: p/				
January-December	2,580 3/	7,690	338	
1996:				
January	565	598	370	
February	W	630	366	
March	556	782	357	
April	W	742	319	
May	W	619	299	
June	W	531	391	
July	677	639	W	
August	592	673	576	
September	551	572	570	
October	539	866	507	
November	563	597	522	
December	402	475	513	
Total	4,450	7,720	XX	

 $<sup>\</sup>mbox{p/}\mbox{ Preliminary. }\mbox{W}\mbox{ Withheld to avoid disclosing company proprietary data. }\mbox{ }\mbox{XX}\mbox{ Not applicable.}$ 

 $<sup>1/\,\</sup>mbox{Data}$  are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Producers and consumers.

<sup>3/</sup> Excludes seven months of withheld data.

 $\begin{tabular}{ll} TABLE & 3 \\ U.S. & PRODUCTION AND STOCKS OF TUNGSTEN PRODUCTS & 1/ \\ \end{tabular}$ 

(Metric tons, tungsten content)

	1	Net production 2/				
		1996		Stocks at end of period		
			Year		1996	
Product	1995	December	to date	1995	December	
Metal powder	2,910	155	3,720	818	815	
Tungsten carbide powder						
(made from metal powder)	5,280	267	3,810	348	413	
Cast and crystalline						
carbide powder; other	W			W	W	
Chemicals	W	W	W	126	129	
Total	8,190	422	7,530	1,290	1,360	

W Withheld to avoid disclosing company proprietary data.

- 1/ Data are rounded to three significant digits; may not add to totals shown.
- 2/ Gross production less quantity used to make other products in table.

TABLE 4 U.S. REPORTED CONSUMPTION, BY END USE, AND CONSUMER STOCKS OF TUNGSTEN PRODUCTS IN DECEMBER 1996 1/

(Metric tons, tungsten content)

		Tungsten	Tungsten	Scheelite		Other		Total
	Ferro-	metal	carbide	(natural,	Tungsten	tungsten		year to
End use	tungsten	powder	powder	synthetic)	scrap 2/	materials 3/	Total	date
Steel:								
Stainless and heat-resisting	W		W		W		W	W
Alloy	2						2	24
Tool	W						W	157
Total	2		W		W		2	181
Superalloys		W	2		15	1	18	216
Alloys (excludes steels and superalloys):								
Cutting and wear-resistant materials		W	484		W	(4/)	484	6,470
Other alloys 5/		W	W		W		W	1
Mill products made from metal powder		W					W	360
Chemical and ceramic uses		W	W			W	W	W
Miscellaneous and unspecified	35	32	267		W	W	334	4,050
Total	37	32	753 6/		15	1	838	XX
Total consumption, year to date	323	636	9,930 6/		177	210		11,300
Stocks, December 31, 1996	26	43	457 6/	1	25	12	564	XX

W Withheld to avoid disclosing company proprietary data. XX Not applicable.

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

 $<sup>2/\,\</sup>mbox{Does}$  not include that used in making primary tungsten products.

<sup>3/</sup> Includes tungsten chemicals.

<sup>4/</sup> Less than 1/2 unit.

<sup>5/</sup> Includes welding and hard-facing rods and materials and nonferrous alloys.

<sup>6/</sup> Based on reported consumption plus information from secondary sources; includes estimates.

 ${\bf TABLE~5} \\ {\bf U.S.~IMPORTS~FOR~CONSUMPTION~OF~TUNGSTEN,~BY~COUNTRY~1/}$ 

(Metric tons, tungsten content)

	Con-			Lumps,	_			Total
Period and country	cen-	Ammonium	Ferro-	grains,	Tungsten			year to
of origin	trate	tungstates	tungsten	powders	carbide	Other e/ 2/	Total	date
1995:	_							
Total	4,180_	1,290	652	312	476	3,260	10,200	XX
1996:	_							
September	521	28	30	47	55	200	881	XX
October	181	128	23	31	41	146	550	XX
November:								
Australia								3
Austria						3	3	23
Belgium				(3/)			(3/)	4
Bolivia	12						12	482
Canada				(3/)	2		2	66
China		58	46		2,010	258	2,370	5,830
Czech Republic								9
France				1		(3/)	1	23
Germany		(3/)		2	10	2	15	209
Hong Kong		15			3		18	213
Hungary						(3/)	(3/)	6
Ireland					(3/)		(3/)	10
Israel						1	1	10
Japan				2	(3/)	3	5	69
Kazakstan								126
Korea, Republic of						(3/)	(3/)	6
Mexico						1	1	47
Netherlands						(3/)	(3/)	208
Peru							2	352
Portugal							10	472
Russia	486		30			20	536	1,790
Sweden		19		1			20	75
Switzerland						(3/)	(3/)	7
Thailand						·		22
United Kingdom						(3/)	(3/)	425
Uzbekistan						·		30
Total	510	92	76	7	2,030	289	3,000	XX
Total, year to date	3,320	1,330	511	388	2,340	2,630	XX	10,500

e/ Tungsten content estimated in part. XX Not applicable.

Note: Imports of waste and scrap in November 1996 totaled 111 metric tons, tungsten content.

Source: Bureau of the Census.

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Includes calcium, potassium, and sodium tungstates, mixtures and materials in chief value tungsten, tungsten oxide, tungstic acid, unwrought ingots and shot, other unwrought tungsten and materials, wrought tungsten, and other tungsten compounds.

<sup>3/</sup> Less than 1/2 unit.

## $\label{eq:table 6} \text{U.S. EXPORTS OF TUNGSTEN, BY COUNTRY 1/}$

(Metric tons, tungsten content)

Period and country of destination	Con- cen- trate	Ammonium tungstates	Metal powder e/	Tungsten carbide	Other e/ 2/	Total	Total year to date
1995:							
Total	5_	238	484	1,670	369	2,760	XX
1996:							
September		19	31	90	15	155	XX
October	(3/)	41	7	117	32	197	XX
November:	_						
Argentina							3
Australia				(3/)	(3/)	(3/)	13
Austria							30
Bahamas							1
Belgium	- 			(3/)		(3/)	65
Brazil			(3/)	(3/)	(3/)	1	9
Canada			4	30	3	37	404
China	- 				(3/)	(3/)	23
Denmark	- 			(3/)		(3/)	4
France	- 			5	(3/)	5	67
Germany	- 		9	13	2	24	403
Guatemala	- 						1
Honduras	-						18
Hong Kong	-		(3/)		(3/)	(3/)	8
India India	-		(3/)		2	2	18
Ireland	(3/)			(3/)		(3/)	3
Israel	_ (3/)			(3/)	(3/)	(3/)	47
Italy	- <del></del>			(3/)	(3/)	(3/)	112
Japan				2	3	5	112
Korea, Republic of			1	1			119
			1	1	(3/)	2	
Luxembourg						1	17
Mexico			(3/)	1	2	3	35
Netherlands	- <del></del>			(3/)	(3/)	1	25
New Zealand							11
Portugal		-		1		1	3
Saudi Arabia							1
Singapore				1	(3/)	1	35
South Africa	_ <del></del>				(3/)	(3/)	25
Spain					1	1	10
Sweden			(3/)	10	(3/)	10	105
Switzerland				(3/)		(3/)	9
Taiwan			(3/)	3	1	4	44
United Kingdom			(3/)	1	1	2	124
Venezuela							3
Vietnam							2
Total	(3/)		16	70	17	103	XX
Total, year to date	17	126	229	1,170	268	XX	1,810

e/ Tungsten content estimated in part. XX Not applicable.

Note: Exports of waste and scrap in November 1996 totaled 56 metric tons, tungsten content.

Source: Bureau of the Census.

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Includes calcium, potassium, and sodium tungstates, mixtures and materials in chief value tungsten, tungstic acid, unwrought ingots and shot, other unwrought tungsten and materials, wrought tungsten, and other tungsten compounds.

<sup>3/</sup> Less than 1/2 unit.